LISTING OF THE CLAIMS

1-31. (Canceled)

32. (Currently Amended) An artificial intervertebral disc prosthesis having an anterior portion and a posterior portion, comprising:

a first endplate having an upper surface and a lower relatively flat, uninterrupted surface;

a second endplate having an upper surface and a lower surface, wherein an axis perpendicular to said first endplate and said second endplate is a longitudinal axis;

a visco-elastic cushion interposed between and adhered to said first and second endplates, wherein said visco-elastic cushion is annular and comprises a cavity therein defining a visco-elastic cushion internal space bounded by a visco-elastic cushion internal surface substantially parallel to said longitudinal axis;

a first projection extending from said lower surface of said first endplate terminating in a first distal end, said first projection having at least one side wall parallel to said visco-elastic cushion internal surface;

~~a second endplate having an upper surface and a lower surface;~~

a second projection extending from said upper surface of said second endplate and into said cavity and substantially aligned with said first projection, said second projection having at least one side wall parallel to said visco-elastic cushion internal surface, said second projection terminating at a second distal end to form, in an unloaded condition, a gap ~~having a predetermined distance~~ between said first distal end and said second distal end, said gap having a predetermined dimension; and

~~a visco-elastic interposed between said first and second endplates further comprising a cavity for receiving said first and second projections;~~

wherein direct contact between first distal end of said first projection and said second distal end of said second projection limits said first endplate and said second endplate from moving relatively closer to one another.

33. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first projection of said first endplate extends a distance of approximately 1 to approximately 3 millimeters from said lower surface of said first endplate.

34. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first projection of said first endplate is substantially cylindrically shaped.

35. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said first distal end has a radius of approximately 2 millimeters to approximately 15 millimeters.

36. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said second projection of said second endplate extends a distance of approximately 3 millimeters to approximately 6 millimeters from said upper surface of said second endplate to said second distal end.

37. (Original) The artificial intervertebral disc prosthesis of claim 32 wherein said gap between said first distal end and said second distal end is approximately 1 millimeters to approximately 2 millimeters.

38. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32 wherein said upper surface of said first endplate and said lower surface of said second endplate further comprise appurtenances that aid in securing the prosthesis to adjacent vertebrae.

39. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32, further comprising a force or pressure transducer located within said

prosthesis for allowing the measurement and transmittal of information about loads experienced by the prosthesis.

40. (Previously Presented) The artificial intervertebral disc prosthesis of claim 39, wherein said second projection of said second endplate houses at least a portion of a package of signal conditioning and amplification electronics that is connected to said force or pressure transducer placed within said second projection and at other peripheral locations around said second endplate.

41. (Previously Presented) The artificial intervertebral disc prosthesis of claim 39, wherein said second projection of said second endplate houses electronics connected to said force or pressure transducer placed within said second projection and at other peripheral locations around said second endplate.

42. (Original) The artificial intervertebral disc prosthesis of claim 39, wherein said second endplate further comprises a flex circuit including a load sensor embedded onto said upper surface of said second endplate.

43. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32 wherein said first endplate and said second endplate comprise a biocompatible material suitable for implantation.

44. (Previously Presented) The artificial intervertebral disc prosthesis of claim 43 wherein said first endplate and said second endplate comprise materials selected from the group consisting of stainless steel, stainless steel alloys, titanium, titanium alloys, cobalt chromium molybdenum alloys, and composite materials.

45. (Previously Presented) The artificial intervertebral disc prosthesis of claim 44 wherein said material is an alloy comprising approximately 66 percent cobalt, approximately 28 percent chromium, and approximately 6 percent molybdenum, by weight.

46. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32, wherein said first endplate and said second endplate each comprise a posterior portion;

wherein said posterior portion of each of said first and second endplates further comprises a concavity that defines posterior lobes projecting from said posterior portions of each of said first and second endplates.

47. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32 wherein each of said first and second endplates have an external surface therearound defining a generally "D" shape.

48-111. (Canceled)

112. (Currently Amended) An artificial intervertebral disc prosthesis having an anterior portion and a posterior portion, comprising:

a first endplate having an upper surface and a lower relatively flat, uninterrupted surface;

a second endplate having an upper surface and a lower surface, wherein an axis perpendicular to said first endplate and said second endplate is a longitudinal axis;

a polymeric cushion interposed between and adhered to said first and second endplates, wherein said polymeric cushion is annular and comprises a cavity therein defining a polymeric cushion internal space bounded by a polymeric cushion internal surface substantially parallel to said longitudinal axis;

a first projection extending from said lower surface of said first endplate terminating in a first distal end, said first projection having at least one side wall parallel to said polymeric cushion internal surface;

~~a second endplate having an upper surface and a lower surface;~~

a second projection extending from said upper surface of said second endplate and into said cavity and substantially aligned with said first projection, said second projection having at least one side wall parallel to said polymeric cushion internal surface, said second projection terminating at a second distal end to form, in an unloaded condition, a gap ~~having a predetermined distance~~ between said first distal end and said second distal end, said gap having a predetermined dimension; and

~~a polymeric cushion interposed between said first and second endplates further comprising a cavity for receiving said first and second projections;~~

wherein direct contact between first distal end of said first projection and said second distal end of said second projection limits said first endplate and said second endplate from moving relatively closer to one another.

113 – 114. (Canceled)

115. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32, wherein said first distal end of said first projection and said second distal end of said second projection are substantially planar.

116. (Previously Presented) The artificial intervertebral disc prosthesis of claim 32, wherein contact between said first distal end of said first projection and said second distal end of said second projection permits at least some motion in a direction perpendicular to a direction that brings said first endplate and said second endplate closer to each other.

117. (Currently Amended) The artificial intervertebral disc prosthesis of claim 112, wherein said first distal end of said first projection and said second distal end of said second projection are substantially planar.

118. (Previously Presented) The artificial intervertebral disc prosthesis of claim 112, wherein contact between said first distal end of said first projection and said second distal end of said second projection permits at least some motion in a direction perpendicular to a direction that brings said first endplate and said second endplate closer to each other.

119. (Currently Amended) An artificial intervertebral disc prosthesis having an anterior portion and a posterior portion, comprising:

a first endplate having an upper surface and a lower relatively flat, uninterrupted surface;

a second endplate having an upper surface and a lower surface, wherein an axis perpendicular to said first endplate and said second endplate is a longitudinal axis;

a projection extending from said upper surface of said second endplate toward said first endplate, said projection being at least partially cylindrical and having at least one side wall parallel to a longitudinal axis of said prosthesis, said projection terminating at a distal end to form a gap ~~having a predetermined distance~~ between said distal end and said first endplate lower surface, said gap having a predetermined dimension; and

a visco-elastic cushion interposed between and adhered to said first and second endplates having a cavity for receiving said projection;

wherein said distal end of said projection is substantially planar.

120. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein said projection of said second endplate extends a distance of approximately 3 millimeters to approximately 6 millimeters from said upper surface of said second endplate to said distal end.

121. (Currently Amended) The artificial intervertebral disc prosthesis of claim 119, wherein said predetermined dimension of said gap between said distal end and said first endplate is approximately 1 millimeters to approximately 2 millimeters.

122. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein said upper surface of said first endplate and said lower surface of said

second endplate further comprise appurtenances that aid in securing the prosthesis to adjacent vertebrae.

123. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, further comprising a force or pressure transducer located within said prosthesis for allowing the measurement and transmittal of information about loads experienced by the prosthesis.

124. (Previously Presented) The artificial intervertebral disc prosthesis of claim 123, wherein said projection of said second endplate houses at least a portion of a package of signal conditioning and amplification electronics that is connected to said force or pressure transducer placed within said projection and at other peripheral locations around said second endplate.

125. (Previously Presented) The artificial intervertebral disc prosthesis of claim 123, wherein said projection of said second endplate houses electronics connected to said force or pressure transducer placed within said projection and at other peripheral locations around said second endplate.

126. (Previously Presented) The artificial intervertebral disc prosthesis of claim 123, wherein said second endplate further comprises a flex circuit including a load sensor embedded onto said upper surface of said second endplate.

127. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein said first endplate and said second endplate comprise a biocompatible material suitable for implantation.

128. (Previously Presented) The artificial intervertebral disc prosthesis of claim 127, wherein said first endplate and said second endplate comprise materials selected from the group consisting of stainless steel, stainless steel alloys, titanium, titanium alloys, cobalt chromium molybdenum alloys, and composite materials.

129. (Previously Presented) The artificial intervertebral disc prosthesis of claim 127, wherein said material is an alloy comprising approximately 66 percent cobalt, approximately 28 percent chromium, and approximately 6 percent molybdenum, by weight.

130. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein said first endplate and said second endplate each comprise a posterior portion;

wherein said posterior portion of each of said first and second endplates further comprises a concavity that defines posterior lobes projecting from said posterior portions of each of said first and second endplates.

131. (Previously Presented) The artificial intervertebral disc prosthesis of claim 119, wherein each of said first and second endplates have an external surface therearound defining a generally "D" shape.

132. (Currently Amended) The artificial intervertebral disc prosthesis of claim 119, wherein direct contact between said projection and said first endplate stops compressive motion but allows at least some amount of shear motion.

133. (Currently Amended) An artificial intervertebral disc prosthesis having an anterior portion and a posterior portion, comprising:

a first endplate having an upper surface and a lower relatively flat, uninterrupted surface;

a second endplate having an upper surface and a lower surface, wherein an axis perpendicular to said first endplate and said second endplate is a longitudinal axis;

a projection extending from said upper surface of said second endplate toward said first endplate, said projection being at least partially cylindrical and having at least one side wall parallel to a longitudinal axis of said prosthesis, said projection terminating at a distal end to form a gap ~~having a predetermined distance~~ between said distal end and said first endplate lower surface, said gap having a predetermined dimension; and

a polymeric cushion interposed between and adhered to said first and second endplates having a cavity for receiving said projection;

wherein said distal end of said projection is substantially planar.

134. (Currently Amended) An artificial intervertebral disc prosthesis having an anterior portion and a posterior portion, comprising:

a first endplate having an upper surface and a lower relatively flat, uninterrupted surface;

a second endplate having an upper surface and a lower surface, wherein an axis perpendicular to said first endplate and said second endplate is a longitudinal axis;

a projection extending from said upper surface of said second endplate toward said first endplate, said projection being at least partially cylindrical and having at least one side wall parallel to a longitudinal axis of said prosthesis, said projection terminating at a distal end to form a gap ~~having a predetermined distance~~ between said distal end and said first endplate lower surface, said gap having a predetermined dimension; and

a visco-elastic cushion interposed between and adhered to said first and second endplates having a cavity for receiving said projection;

wherein direct contact between said distal end of said projection and said first endplate permits at least some motion in a direction perpendicular to a direction that brings said first endplate and said second endplate closer to each other.

135. (Currently Amended) An artificial intervertebral disc prosthesis having an anterior portion and a posterior portion, comprising:

a first endplate having an upper surface and a lower relatively flat, uninterrupted surface;

a second endplate having an upper surface and a lower surface, wherein an axis perpendicular to said first endplate and said second endplate is a longitudinal axis;

a projection extending from said upper surface of said second endplate toward said first endplate, said projection being at least partially cylindrical and having at least one side wall parallel to a longitudinal axis of said prosthesis, said projection terminating at a distal end to form a gap ~~having a predetermined distance~~ between said distal end and said first endplate lower surface, said gap having a predetermined dimension; and

a polymeric cushion interposed between and adhered to said first and second endplates having a cavity for receiving said projection;

wherein direct contact between said distal end of said projection and said first endplate permits at least some motion in a direction perpendicular to a direction that brings said first endplate and said second endplate closer to each other.

136. (New) An artificial intervertebral disc prosthesis comprising:

a first endplate having a first surface for engaging a vertebra and a second surface opposite said first surface;

a second endplate having a first surface for engaging a different vertebra and a second surface opposite said first surface;

a longitudinal axis defined between said first endplate and said second endplate and normal thereto;

an annular polymeric member having an upper surface and a lower surface and having a cavity defining a polymeric member internal space that is bounded along said longitudinal axis by said second surface of said first endplate and by said second surface of said second endplate, and is bounded in a plane normal to said longitudinal axis by a polymeric member internal surface;

a projection from said second surface of said second endplate having a distal end located within said polymeric member internal space, said distal end having a contact surface thereon for directly contacting a portion of said second surface of said first endplate;

wherein said upper surface and said lower surface of said annular polymeric member are adhered to, respectively, said second surface of said first endplate at a first adhesion layer and to said second surface of said second endplate at a second adhesion layer;

wherein at least one of said first adhesion layer and said second adhesion layer is parallel to said contact surface of said projection.

137. (New) The artificial intervertebral disc prosthesis of claim 32 wherein said first endplate and said second endplate have no ball and socket connection therebetween.

138. (New) The artificial intervertebral disc prosthesis of claim 32 wherein at least one of said first distal end and said second distal end comprises a relatively flat, uninterrupted surface.

139. (New) The artificial intervertebral disc prosthesis of claim 136 wherein said lower surface of said first endplate is substantially parallel to said upper surface of said first endplate.

140. (New) The artificial intervertebral disc prosthesis of claim 136 wherein said upper surface of said second endplate is substantially parallel to said lower surface of said second endplate.

141. (New) An artificial intervertebral disc prosthesis comprising:

a first endplate having a first endplate first surface for engaging a vertebra and a first endplate second surface opposite said first endplate first surface;

a second endplate having a second endplate first surface for engaging a different vertebra and a second endplate second surface opposite said second endplate first surface;

an annular polymeric member having an upper surface and a lower surface and having a cavity defining a polymeric member internal space, said polymeric member interposed between said first endplate and said second endplate;

a projection extending from said second endplate second surface into said polymeric member internal space and having a distal end closest to said first endplate second surface; and

wherein said annular polymeric member is adhered to said second endplate second surface at an adhesion layer lying in an adhesion layer surface plane.

142. (New) The artificial intervertebral disc prosthesis of claim 141 wherein a first plane passes through a centroid of said first and said second endplates and is located within said polymeric member internal space and intersects said adhesion layer surface plane at an intersection line.

143. (New) The artificial intervertebral disc prosthesis of claim 142 wherein said distal end of said projection is situated closer to said first endplate second surface than is said intersection line.

144. (New) An artificial intervertebral disc prosthesis comprising:

a first endplate having a first endplate first surface for engaging a vertebra and a first endplate second surface opposite said first endplate first surface;

a second endplate having a second endplate first surface for engaging a different vertebra and a second endplate second surface opposite said second endplate first surface; and

an annular polymeric member having an upper surface and a lower surface and having a cavity defining a polymeric member internal space, said polymeric member interposed between said first endplate and said second endplate;

wherein each of said first endplate and second endplate comprises a respective centroid, and an axis intersecting said centroids is defined as a first axis;

wherein a cross-sectional plane is defined containing said first axis;

wherein in a section cut by said cross-sectional plane, on a left side there is a left contact interface line where said polymeric member contacts said first endplate second surface, and a left imaginary extension line of said left contact interface line projecting inwardly into said polymeric member internal space;

wherein in said cross-sectional plane on a right side there is a right contact interface line where said polymeric member contacts said first endplate second surface, and a right imaginary extension line of said right contact interface line projecting inwardly into said polymeric member internal space;

wherein said first endplate comprises a projection extending from said first endplate across said left imaginary extension line or said right imaginary extension line into said polymeric member internal space.